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Non-Nuclear Strategic Deterrence of State and Non-State Adversaries

Potential Approaches and Prospects for Success

A Study for
The Defense Threat Reduction Agency
Advanced Systems and Concepts Office

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Non-Nuclear Strategic Deterrence

Potential Options and Prospects for Success

Project Information

SPONSOR: Defense Threat Reduction Agency
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Advanced Systems and Concepts Office
Dr. Charles Gallaway, Director

BACKGROUND: The Defense Threat Reduction Agency (DTRA) was founded in 1998 to integrate and focus the capabilities of the Department of Defense (DoD) that address the weapons of mass destruction (WMD) threat. To assist the agency in its primary mission, the Advanced Systems and Concepts Office (ASCO) develops and maintains an evolving analytical vision of necessary and sufficient capabilities to protect United States and Allied forces and citizens from WMD attack. ASCO is also charged by DoD and by the US Government, generally, to identify gaps in these capabilities and initiate programs to fill them. It also provides support to the Threat Reduction Advisory Committee (TRAC), and its Panels, with timely, high quality research.

ASCO ANALYTICAL SUPPORT: DFI International has provided analytical support to DTRA since 1999 through a series of projects on nuclear, chemical, and biological issues. This work was performed for DTRA under contract DTRA01-00-D-0001.

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Executive Summary

Growing doubts about the credibility of the use of nuclear-based threats against smaller states and non-state actors (NSAs) armed with weapons of mass destruction (WMD), especially biological and chemical weapons (BW/CW), have prompted concern among US policy makers and defense practitioners. US conventional-based threats do not suffer from the same credibility problem, but historically the deterrent effectiveness of such military force was open to question. The significant improvement in US conventional forces over the past decade raises the prospects for relying exclusively on non-nuclear weapons to deter at least some WMD-armed adversaries.

This report examines potential approaches to non-nuclear strategic deterrence (NNSD) and their prospects for success against both state and non-state adversaries. The project team begins by laying out a basic deterrence framework and applying it to WMD-armed adversaries to identify key issues and requirements for NNSD. This framework takes into account significant contextual (regional, historical, and idiosyncratic) differences for deterrence. Next, the team explores NNSD options and identifies the most promising approaches. Then, the compatibility of NNSD approaches with existing US doctrine, force structure, and organization is addressed, followed by consideration of changes advantageous to NNSD. Finally, the report concludes with a general assessment of the prospects for NNSD and with priority recommendations to improve its potential.

For the purposes of this paper:

- "Non-nuclear" refers to the use of conventional military assets, including Special Operations Forces (SOF) and Information Operations (IO)
- "Deterrence" involves the use of threats (explicit and implicit) to convince adversaries to refrain from taking particular actions by conveying to them that the costs and risks of such actions outweigh the potential benefits
- "Strategic deterrence" involves deterring adversaries from using WMD to attack US territory, forces, or citizens along with key allies
- WMD is limited to nuclear, chemical, and biological (NBC) weapons
- NNSD is not applicable to states with significant nuclear capabilities (i.e., Russia and China)

Therefore, this report focuses on smaller, emerging, and potential WMD-armed adversaries including non-state actors (NSAs).

Primary Findings

The most viable way to pursue NNSD is by integrating the two basic approaches to deterrence: denial of the military objectives sought by adversaries and retaliation against critical regime/leadership assets if WMD is used. A NNSD strategy that attempts to deter exclusively by either the threat to deny the adversary its objectives or the threat to retaliate is unlikely to be successful.

- Current conventional capabilities are inadequate for successfully pursuing NNSD exclusively as a deterrence strategy, especially given the lack of defenses that would allow credible (low risk, high effect) threats
  - Current developments in technology point towards improvements that should make NNSD increasingly feasible in the future
  - To be credible, capabilities must be demonstrable to adversaries
- Until current challenges for conventional capabilities (especially defenses) can be addressed, NNSD can be pursued as non-nuclear options for a broader WMD deterrence strategy that includes nuclear options
  - This is especially true when the US threat of nuclear retaliation is questionable, such as against lower-level WMD threats (limited biological or chemical attack)
- Pursuit of NNSD does not require major changes in doctrine or organization, but some shifts in emphasis are important to highlight US commitment and US capabilities to deter WMD and distinguish NNSD from general, conventional operations. Among these recommended shifts:
  - Improved integration of conventional capabilities (e.g., remote strike, IO, and insertion forces)
  - Expansion of ties between strategic elements (e.g., STRATCOM, SOCOM, SPACECOM) and the regional commands (CINCs) within the military
  - A more prominent public profile for the military with regard to terrorist WMD threats

Although NNSD in this report focuses on NBC threats, recent events (09-11-01) demonstrate the need to consider expanding the definition of WMD or substituting the term CBRNE (chemical, biological, radiological, nuclear, and high-explosives) to capture the full range of strategically significant actions.

NNSD for State Adversaries:

Broad differences between states and NSAs result in some differences in the application of NNSD. In the case of state adversaries, both the denial and retaliation components of NNSD are applicable and viable approaches to deterring WMD-threats.

- An explicit retaliatory policy specifically aimed at a state adversary's regime assets (such as elite guards and personal assets as opposed to broader national targets) is required to emphasize the high strategic significance of WMD threats
- Current efforts to improve and develop new active defenses (especially theater ballistic missile and cruise missile defenses) are crucial for employing NNSD as an exclusive strategy for deterring state adversaries
- Even if the US de-emphasizes or explicitly rules out the use of nuclear weapons in pursing NNSD, their continued existence cannot and will not be ignored resulting in an ongoing "existential nuclear deterrence"

NNSD for Non-State Adversaries:

Ceteris paribus, deterring NSAs is more difficult for the US regardless of strategy.

- Denial of objectives is more difficult with NSAs given the ambiguity of threats and potentially enormous range of potential targets
- Retaliation is viable but also limited by difficulties for timely, demonstrable attribution and identifying NSA targets
  - Establishing demonstrable attribution will be required for effective retaliation and poses a significant challenge for NNSD
- The role of the military (especially for retaliation) must be elevated to shift the view of WMD-terrorism as a crime punishable by law enforcement to an act of war that will precipitate military action
  - The events of 09-11-01 have underscored this point
- Some increase in adversary awareness of IO and SOF capabilities is required to make deterrence more credible
  - This must be weighed against the need to protect the sensitive nature of these capabilities

This report explores the prospects for NNSD approaches in general. However, the application of NNSD (particular policies, force postures, and targeting) will need to be tailored to specific threats and situations. Successful deterrence must take into account regional, cultural, historic, and regime-type factors. The US, therefore, should place a great deal of emphasis on how to effectively convey a deterrent threat so that it is perceived as credible by a specific adversary.

Introduction

The growing numbers and diversity of WMD-armed adversaries in recent years have made strategic deterrence a much more complicated matter. During the Cold War, the US primarily faced a single, dominant adversary with nuclear weapons. Today, strategic threats include biological and chemical weapons (BW and CW) from multiple adversaries ranging from established nuclear powers (like Russia and China) to emerging WMD adversaries (such as Iraq or North Korea) and even terrorists and other non-state actors (NSAs).

> ***There are growing doubts about the credibility of US nuclear retaliation as a deterrent to the diverse range of new and emerging WMD threats.***

This varied, multi-tiered WMD environment clearly raises the need to re-evaluate deterrence rather than discard it and re-think deterrence strategy so that it applies to the current context of WMD threats to the US. In particular, there are growing doubts about the credibility of US nuclear retaliation as a deterrent to WMD. With smaller WMD adversaries (including NSAs) and the potential for lower-level WMD attacks (such as limited use of BW or CW), many question whether a nuclear response is reasonable. As a result, exploring options for non-nuclear strategic deterrence (NNSD) may identify new approaches for deterring emerging WMD threats.

Conventional forces have, of course, always played a role in strategic deterrence. Recently, however, there have been significant improvements in conventional capabilities due to technological advancements. Stealth technology, precision guided munitions (PGMs), and the application of computer technology to all aspects of warfare have (among many other advancements) made conventional forces more accurate and lethal. Moreover, the prospect of working missile defenses offer a way to blunt adversary attacks, reducing prospective costs for US involvement. These trends make pursuing NNSD as the primary approach for deterring WMD a more viable option than in the past.

The NNSD Project

As follow-on to an earlier project on "Deterrence and Cooperation in a Multi-Tiered Nuclear World,"[1] DTRA/ASCO tasked DFI International to examine the feasibility of potential approaches for NNSD to deter WMD threats from

[1] See: "US Coercion in a World of Proliferating and Varied WMD Capabilities: Final Report for the Project on Deterrence and Cooperation in a Multi-Tiered Nuclear World (February 2001)," available on the DTRA/ASCO website (http://www.dtra.mil/about/organization/ab_pubs.html).

both states and NSAs. The project team assessed the strengths and weakness of various NNSD options in order to identify the most promising course of action. Then it examined the implications of pursuing such a strategy for US doctrine, force structure, organization, and general warfighting capabilities. The analysis in this project drew on extensive research, including published works, government documents, and the opinions of prominent experts in the government and wider security community.[2]

For the purposes of this project, WMD was limited to nuclear, biological, and chemical (NBC) weapons. Other munitions (such as high-explosives (HE) and radio frequency (RF) weapons) can also cause mass destruction.[3] However, NBC threats remain politically significant enough to consider them as WMD. These threats are also central in DTRA's mission in the Department of Defense (DoD) to support operational forces in countering the proliferation of NBC.

Similarly, the term "strategic" has a variety of meanings for threats in different contexts. It is used here to refer to WMD attacks on US territory, forces, and citizens along with key allies or interests around the world.[4] The terms "non-nuclear" and "conventional" are used interchangeably and include capabilities such as SOF and IO. Therefore, for this project and in this report, NNSD involves the use of conventional forces to deter WMD attacks on the US and its vital interests.

This report summarizes the findings of the NNSD project. The first section presents the methodology used in this project including the framework for analysis of deterrence and other contextual issues related to the NNSD approach. The next section explores potential NNSD approaches for both states and NSAs. The strengths and weaknesses of these approaches are assessed leading to a recommended NNSD strategy. After this, the project team evaluates the implications of this recommended strategy for doctrine, force structure, and organization. The concluding section offers general observations about the potential of NNSD and specific recommendations for enhancing its prospects.

[2] The project team also conducted an extensive literature review with an emphasis on conventional deterrence and the deterrence of NSAs.

[3] Also, NBC weapons can be used in limited ways (especially BW and CW) that make automatically labeling them WMD something of a misnomer.

[4] The significance of a WMD attack will have to also be taken into consideration in order to consider it a "strategic" attack. See the section on "WMD Threat" on page 9 of this report.

NNSD: Methodology

This section provides an overview of the project's methodology. It begins by outlining the basic framework used to analyze the effectiveness of deterrent approaches. Then, the report addresses the specific implications of deterring NSAs and WMD-armed adversaries, including the resulting requirements for deterrence. Finally, it introduces the basic ways to satisfy these requirements: what to threaten and how to do it (i.e., nuclear versus conventional weapons).

Context

US efforts to deter WMD will vary considerably depending on context. This context consists of four main considerations: level of US deterrence attempted, adversary type, WMD threat, and geographic region. The following section provides an overview of these concepts along with a brief explanation of the analytical framework used in this project.[5]

Levels of Deterrence

In broad terms, there are three types of deterrence: general deterrence, immediate deterrence, and intra-war deterrence. General deterrence refers to strategy, policy, and force posture that is intended to deter during peacetime. Immediate deterrence is associated with a crisis situation and involves specific actions to deter specific threats. Intra-war deterrence involves efforts to control horizontal or vertical escalation in the midst of hostilities.[6]

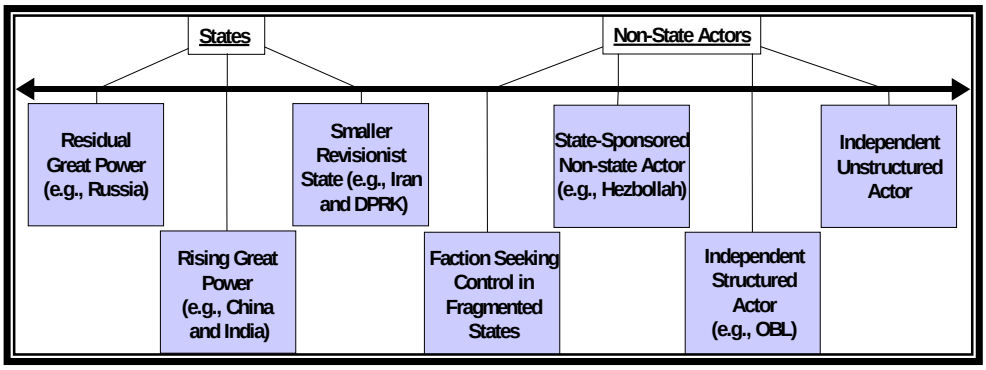
Adversary Types

Adversaries can be grouped into two basic categories: states and NSAs. More accurately, however, these two categories represent the range of adversaries (see Figure 1). This range includes established nuclear states (such as Russia and China) as well as emerging WMD states (such as Iraq and North Korea). On the other end of the spectrum are NSAs including independent terrorist groups without a specific state affiliation (such as Osama bin Laden's network).

[5] This project builds on earlier work by DFI International for DTRA/ASCO on WMD deterrence. For more details on these concepts and the framework used, see the previous final report cited above. Some additional concepts have been included here for consideration in the framework.

[6] Patrick M. Morgan, *Deterrence: A Conceptual Analysis*, (Beverly Hills: Sage Publications, 1983).

Figure 1: Range of Adversary Types



Between these two ends of the range are adversaries who exhibit traits of both state and non-state adversaries. State-sponsored terrorists, state proxies, and even factions seeking control in fragmented states can be considered state-like in some respects although they may still technically be non-state entities. These intermediate actors demonstrate the difficulty in separating the threats from states and NSAs.

Moreover, both states and NSAs now have the potential to threaten the US in similar manners. States may use NSA tactics and NSAs armed with WMD can threaten the US at a level of significance previously only presented by state adversaries. Therefore, relegating NSAs with WMD as lower-level threats (or law enforcement concerns) is inadvisable.

> ***Distinguishing between threats from states and NSAs may be increasingly difficult, especially when WMD is involved.***

For the purposes of devising a deterrence strategy, however, differences between states and NSAs in terms of actor composition and characteristics require distinct consideration as two major groups. All states, whether large powers or small revisionist countries, possess identifiable territory, formal leadership, and regime structures. This means that a regime can be held responsible for actions taken by its military and targets can be more readily identified. Attribution and targeting against NSAs, on the other hand, can be substantially more difficult.

WMD Threat

The threat posed by WMD is often determined by the type of WMD involved. Nuclear weapons are usually considered the most significant followed closely by BW while CW is often considered a distant third or sometimes no more significant than a conventional threat. However, this approach does not take

into consideration the intent or potential effects of WMD threats. For example, an extremely effective use of CW may ultimately be more significant than an ineffective or failed nuclear attack. Therefore, in addition to the type of WMD involved, three other components of a WMD threat should be considered: the size of the attack (as an indicator of intent), the target threatened (military or civilian, US or allied, some combination of these), and the effects (casualties, damage, or strategic advantage).

Geographic Region

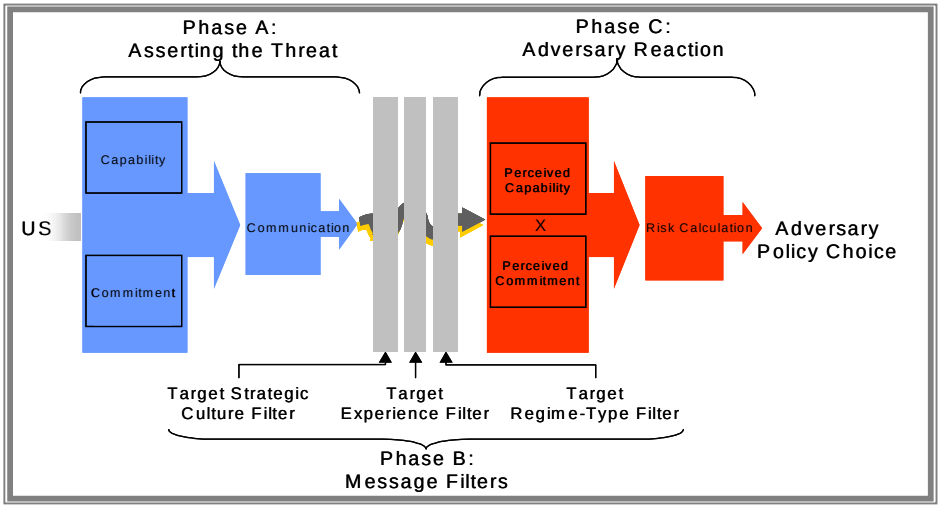
Regional differences can play a particularly large role in deterrence. History in the region, past interactions with the United States, and differences in perception (based on culture, politics, and/or asymmetries in interests) all play very significant roles in US deterrence attempts. Many of these factors are included in the deterrence framework outlined below and they represent the rich variance in contexts for US deterrence of WMD threats.

> ***Understanding the varying contexts of deterrence is critical for both analyzing and applying a deterrence strategy.***

The Deterrence Dynamic

Even with this extremely variable context, however, some basic components of the deterrence process can be identified. In general, deterrence is an interactive dynamic between two parties that involves the use of a threat by one in an attempt to convince the other not to act in some manner. In this case, it is an attempt to convince adversaries not to use (and thus undermine any threat to use) WMD. This dynamic is represented in the framework below (see Figure 2).[7]

Figure 2: The Deterrence Dynamic



[7] This framework was developed in the previous DFI study on WMD deterrence and is described in greater detail in that final report (cited above). See: pp. 8-15.

There are three major phases in the deterrence dynamic. The first (Phase "A") involves the assertion of a deterrent threat and is based on US capability (primarily military) to carry out the threat, commitment to the issue or interest being threatened, and communication[8] of this deterrent threat to an adversary. The second phase (Phase "B") consists of contextual "message filters" that represent the adversary's particular strategic culture, historic experiences (especially with the US), and regime types.[9] These filters can significantly influence adversary perceptions of a deterrent threat. The filters potentially distort the US threat and can prompt an adversary's perception of US credibility at odds with the intended message. It is the perceived US credibility that influences adversary's risk calculation as decisionmakers weigh the costs and benefits of using WMD. These adversary perceptions and decisionmakers' subsequent "risk calculation" make up the third phase (Phase "C") in the deterrence dynamic, leading to a policy choice.[10]

> ***Deterrence depends on effectively conveying a credible threat to an adversary so that its leadership either views any aggression as unlikely to succeed or sufficiently increases their expected costs so that the risks outweigh any potential gains from using WMD.***

It is the adversary's calculation of risks that a deterrent strategy ultimately seeks to influence. While there are clearly a number of idiosyncratic factors involved in an adversary's decisionmaking process, risk calculation can be roughly characterized as including an assessment of utility[11] and risk propensity.[12] Therefore, the key to successful deterrence is effectively conveying a credible threat to an adversary so that its leadership either views any aggression as unlikely to succeed (through prevention, defense, and/or consequence management) or sufficiently increases their expected costs (through defense or retaliation) such that the risks outweigh any potential gains from using WMD.

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[8] Communication goes beyond declarations of policy and includes non-verbal communications such as deployments and other demonstrations of capability and/or commitment.

[9] It should be noted that these message filters are closely related to the contextual considerations noted above, especially adversary type and regional differences.

[10] The term "risk calculation" is not intended to reflect a specific or explicit decisionmaking process, but rather is a representation of the general weighing of costs and benefits in making significant decisions (such as whether to use WMD).

[11] Utility involves the probability of success weighted by the potential gains and losses (including the costs to an adversary of compliance with US demands). Similar to Bruce Bueno de Mesquita's "Expected Utility Theory." See: Bruce Bueno de Mesquita, *The War Trap* (New Haven, CT: Yale University Press, 1980).

[12] Decisionmakers possess different "risk-propensities." By nature, leaders (as a group or individually) may be either more or less willing to run risks according to specific mindsets and preferences.

The pivotal role of the message filters, noted above, cannot be overstated. This means that deterrence depends on more than just force structure capabilities and even actual commitment. Appropriate, tailored communication (both verbal and demonstrative) based on detailed regional studies will be required to ensure that deterrent threats are both accurately conveyed and perceived as credible. If these filters are not sufficiently taken into consideration, even the most capable deterrent force may fail to actually deter.

Implications of Deterring NSAs

DFI developed the basic deterrence framework to capture the interaction between two states. Applying the framework to NSA adversaries entails noteworthy implications for some components of the process. Given the nature of most NSAs, the message filters that influence their perceptions can be markedly different from those of state adversaries. Their strategic cultures, for example, often reflect a natural predilection for violence and extra-legal means of achieving objectives. At the same time, their experience with the United States (particularly with regard to deterrence) is likely limited and NSA leaders (inasmuch as they represent regime type) usually have extremely informal means of receiving information and making decisions. Although the message filters for NSAs may be more amenable to change than those for state actors, they are also more idiosyncratic, making perceptions difficult to predict.

> ***Non-state actors are extremely difficult to deter because they are inherently revisionist and may regard even failed attacks as superior to inaction.***

Perhaps most significantly, however, NSAs often appear to employ substantially different risk calculations. NSAs are inherently revisionist since they exist to challenge the *status quo* in some way. As a result, NSAs often have very different measures of success and failure. While states are generally trying to achieve some sort of military objective (such as territorial gain or coercion), NSAs are often seeking only to gain attention or generate fear through violence and/or casualties. Thus, although they may be concerned about limited assets or resources, *ceteris paribus* they tend to be more risk-acceptant than states and are particularly difficult to deter.

Implications of Deterring WMD-armed Adversaries

Although the deterrence dynamic is broadly applicable to any military threat, adversary possession of WMD entails some specific implications for US deterrence attempts. Given current gaps in the US military's ability to deal with WMD threats, the possession of WMD by adversaries clearly weakens

US capabilities and advantages.[13] The implications for US commitment, however, are less clear and may be scenario dependent. In some cases, adversary WMD may raise concerns about potential casualties and thus diminish interest while in others the significance of the threat will strengthen US resolve.[14]

These effects of WMD on the deterrence dynamic make it more difficult for the US to convince the adversary of the credibility of US threats. There is clearly a negative impact on perceived capabilities based on recognized shortcomings in US military capabilities and questionable US commitment in the face of a WMD threat. Distortions in the message filters encourage decisionmakers in the target state to regard US threats as less credible even if actual commitment is high.

> ***The credibility of US deterrence is severely undermined when WMD is involved due to perceived gaps in US capabilities along with questions about US commitment and casualty aversion.***

Moreover, WMD may make adversaries more risk acceptant especially if they believe their potential for success has increased. This risk propensity is augmented by the asymmetry in interests that often make the stakes much higher for an adversary than the United States. In other words, WMD-armed adversaries may be blinded by the potential gains that WMD may bring them rather than consider the potential costs that may be involved.

For example, US policies often assume that an adversary will be guided by the worst-case scenario. Yet, expecting adversaries to adopt a worst-case mindset is a questionable assumption for non-Western decisionmakers operating in different strategic cultures and political systems. Instead, the perceived advantages of WMD (the potential ability to inflict massive casualties on the US) could lead some adversaries to focus on potential gains. As a result, a deterrence strategy that relies on worst-case planning could fail.[15]

Thus, adversary possession of WMD exacerbates the challenge of conveying credible deterrence. It generates requirements for augmented capabilities, increased commitment, and improved communication. Since credibility is the key to deterrence, the emphasis must be on demonstrating improved capability and employing a declaratory policy that produces clear commitment. Capabilities may be demonstrated in a number of ways including: forward

[13] Active and passive WMD defenses as well as munitions capable of effectively targeting and destroying WMD capabilities are lacking.

[14] Ultimately, the relative weight of these potentially counteracting pressures (i.e., increased potential for casualties versus potentially increased US level of interest) on US commitment against WMD-adversaries will depend on the specific context, especially the extent of the underlying US security interests at risk.

[15] This shortcoming reflects the danger with the US policy of "calculated ambiguity" to deter rogue states armed with WMD through the possibility of nuclear retaliation.

deployment; robust, public exercises; and uses in other operations (even if WMD is not involved). Declaratory policies should be tailored to address specific contexts and be as specific and explicit as possible without creating requirements for the US that it cannot or will not meet.

If successful, deterrence can effectively remove WMD from the equation between the US and adversaries considering intervention or hostilities. Removing an adversary's WMD from consideration reduces a confrontation to a conventional stand-off that both parties would generally presume to favor the US. Therefore, WMD deterrence is of growing importance not only due to the proliferation of WMD threats, but also because of the implications such threats have for the credibility of US intervention.[16]

Applying the Deterrence Dynamic

How the US can best meet the requirements outlined above depends on the answer to two questions: What should the US threaten? And, what means should be employed to carry out this threat?

The first question relates to the decision on how to pursue deterrence. Deterrence can rely on the threat to deny the adversary its objective(s) of aggression, the threat of retaliation for such aggression, or some combination of these two approaches. Denial of objectives would mean seeking to ensure that an adversary does not obtain the goals sought by using WMD. These goals could include territorial control or the simple infliction of casualties. Denial, therefore, involves both warfighting capabilities and defenses (including consequence management). Retaliation, on the other hand, would involve a punitive military strike after an attack that would seek to inflict costs on an adversary. These strikes could be aimed at military assets (including WMD capabilities) or other targets of value to an adversary.

The second core decision relates to the types of weapons to employ to generate the threat. Deterrent threats can be based on nuclear weapons, conventional forces, or a combination of the two. Cold War deterrence relied primarily on the threat of nuclear weapons. As noted above, however, the credibility of this approach is being questioned against many of the emerging WMD-armed adversaries.

The distinction between conventional and nuclear weapons can result in significant implications for deterrent threats based on differences in the characteristics and political-military "stature" of these classes of weapons. Nuclear weapons are generally considered to have greater psychological impact than conventional weapons.

[16] This project focused on the military tools for WMD deterrence, but complementary tools, such as diplomacy and economic sanctions, are important and touched on as well.

Nuclear weapons are broadly accepted as being capable of inflicting massive damage, although controlling collateral damage can be a problem. In the current context, however, there is the potential for "self-deterrence" when it comes to the use of nuclear weapons due to concerns about domestic and international reactions to the use of such overwhelmingly destructive weapons in anything but the most extreme circumstances. Adversaries, therefore, are not likely to doubt the capability of nuclear weapons. However, with the exception of Russia and China,[17] growing doubts exist over the credibility of nuclear threats.

If such threats are not judged credible, deterrence based on nuclear options is unlikely to significantly affect the risk calculations of WMD-armed adversaries, especially if they are particularly risk-acceptant. In fact, the problems with the credibility of nuclear threats suggest that there is a "threshold" for the effectiveness of nuclear deterrence. In other words, adversaries may believe that nuclear retaliation is only credible in response to a substantial WMD attack and not likely for a lower-level or more limited WMD attack. Unfortunately, such an apparent or perceived threshold may also suggest that there are actions that may be taken by adversaries (such as limited use of WMD) that do not risk nuclear retaliation. This further undermines the credibility of deterrence based on nuclear options, especially for the lower-level uses of WMD from smaller adversaries.

> ***While NNSD addresses some of the shortcomings of WMD deterrence based on nuclear retaliation, it raises new issues that must be resolved in order to implement NNSD effectively.***

Conventional weapons appear to address many of these problems. They have advantages in that they seem to be a more credible threat given their potential for greater precision (to limit collateral damage) and an appreciation that the US would not feel constrained about their employment, unlike nuclear weapons.

However, the availability of sufficient capability with exclusively conventional forces is questionable. It would require a far greater number of weapons to even approach the destructive power and threat of nuclear weapons. Also, limited US defensive capabilities may lead some adversaries to believe that the US will be self-deterred and avoid intervention due to casualty aversion. Such a belief would raise questions about US commitment in these situations. Therefore, even if the US is committed to acting despite the potential for casualties, the *perception* that potential WMD use discourages the US from intervening may make adversaries difficult to deter using non-nuclear threats alone.

[17] Russia and China are both established nuclear powers with significant or growing nuclear capabilities.

Existential Nuclear Deterrence

Any non-nuclear strategic approach must take into account the US possession of nuclear weapons. Even if NNSD is pursued fully, the US will still possess significant nuclear capabilities. This is a reality that adversaries will appreciate regardless of the US deterrent strategy and might effectively result in so-called "existential nuclear deterrence."[18]

When pursuing NNSD, the US has two ways to address the nuclear question. First, the US could pursue NNSD and simply not address the potential for any nuclear use. Such an "unspoken" nuclear deterrent would force adversaries to at least consider the possibility of such an attack, even if they are still skeptical about the actual willingness of the US to employ nuclear weapons.[19]

Alternatively, the US could explicitly exclude the use of nuclear weapons in certain contexts (such as BW or CW threats). Even then, the continued US possession of nuclear weapons means that such a declaration that nuclear weapons will not be used could simply be ignored. Still, this pledge would certainly play a role in an adversary's risk calculation and focus attention on the US conventional deterrent rather than on whether or not the US would use nuclear weapons. This may be very significant since focusing on the credibility of US nuclear threats (whether explicit or implicit) may mislead WMD-armed adversaries in their risk calculations and cause them to take risks by concluding that nuclear use was not credible and the other deterrent capabilities not important. Therefore, explicitly excluding nuclear weapons could make NNSD more effective as a primary deterrence strategy than not addressing nuclear weapons at all.

[18] Based on the term "existential deterrence" coined almost twenty years ago by McGeorge Bundy. See: McGeorge Bundy, "The Bishops and the Bomb," *New York Review of Books*, 16 June 1983.

[19] This skepticism would be augmented by the fact that the US has chosen to pursue NNSD.

NNSD: Approaches

In this section, potential approaches for NNSD are explored. First, the full range of actors is examined. Then, NNSD approaches for the two basic actor types (states and non-states) are analyzed. Based on these analyses, the section concludes by identifying the most promising approach.

NNSD for State Actors

NNSD strategy for threats from state actors could be based on denial, retaliation, or some combination of these two approaches. It should be noted here that Russia and China are excluded from this analysis of NNSD options. Both are established, strategic nuclear powers with sizable or growing nuclear arsenals and a history of nuclear deterrence with the US. While many of the issues examined below may also be applied to these two nuclear powers, NNSD is more specifically intended to deal with smaller and emerging WMD adversaries.

State NNSD by Denial

In the case of a denial approach for NNSD, the US would threaten to use conventional forces to deny the WMD-armed adversary from accomplishing its military objectives. There are three general ways in which a state could use WMD:

1. Interstate Attack: As part of a military operation (invasion, strike, etc.)
2. Coercion: As a threat to achieve political objectives
3. Domestic: Against their own people in internal conflicts

Attempting to deny the objectives of a WMD attack is obviously a critical mission for US military forces. Not only is this required to protect the US, US forces, and allies/friends, but it also undermines WMD coercion attempts by the adversary (see below). Doing this with conventional forces, however, involves substantial difficulties. Perceived vulnerabilities to WMD and perceived US casualty aversion mean that the US will have to demonstrate the ability to deny an adversary's objectives while avoiding unacceptable casualties.[20]

Trying to deter political-military coercion by an adversary using WMD would be problematic. Such an effort would address a common use of military capabilities by adversaries and could help avoid crises. Still, this would be extremely difficult to accomplish, especially given the potential ambiguity of

[20] The extent of US casualty aversion has become a disputed issue in recent years. As long as an adversary perceives the US to be casualty averse, the US deterrence potential suffers unless it can defend its forces from WMD attack.

coercive threats. Deterrence of these types of threats would require a complicated mix of highly coordinated military, diplomatic, and economic tools. This could draw US armed forces into conflicts that are not yet military in nature and risks escalating these situations to armed confrontations. More fundamentally, adversaries are less likely to regard US attempts at deterrence as credible against coercion *vice* actual military aggression.

Denying WMD-based coercion, therefore, will be challenging. But, it may also become a more frequent concern as these weapons proliferate. However, to do this effectively, US forces will have to demonstrate the capability to deny the military threat behind any coercion attempt (see above). If the US military is unable to combat the actual, threatened use of WMD, it will be unable to combat coercion based on such threats.

Using US conventional forces to keep adversaries from using WMD against their own people[21] would be both morally justified and may allow the US to deal with dangerous regimes before they become a direct military threat to others. However, such an effort would be extremely problematic (especially as a strategic approach) since it involves activities inside a potentially hostile state. Deterrent threats to deny this type of WMD-use would require extensive political support (both within the US and in the international arena) to be credible. Moreover, it would draw the US into internal conflicts, which could even risk creating a backlash against the US within the target country. Except in the most extreme cases, denying this very small subset of WMD threats would be extremely difficult, risky, and of questionable utility.

State NNSD by Retaliation

In contrast to an approach that denies an adversary's objectives, which might not always be practical, the US could seek to deter by threatening severe retaliation after adversary WMD-use. Such an approach could employ different targeting strategies:

1. Military Elements: Bases, forces, command assets
2. Civilian Infrastructure: Power grid, transportation, fuel or water
3. Regime Assets: Instruments of control, public and private assets
4. State Entity: Target through conquest, occupation, and restructuring

Once again, there are both strengths and weaknesses associated with each of these options. Threatening to retaliate against an adversary's military assets would directly target the assets (including WMD and other symbols of regime power and prestige) that may directly threaten US interests. However, they can be difficult to target (especially mobile assets) and destroy (especially hardened targets). Such an approach may also promote a "use it or lose it" situation for adversaries. Improving munitions and targeting capabilities

[21] For example, Iraq's use of CW against Kurds in the village of Halabja in March 1988 that killed approximately 5,000 and injured 10,000.

make this a more feasible strategy. Still, threatening military targets exclusively entails only limited and temporary costs for an adversary that, if willing to run high costs, would not be deterred.

Targeting civilian infrastructure can weaken an adversary's ability to conduct hostilities and may undermine the regime's domestic support. At the same time, it does not necessarily degrade military capabilities or the regime itself. There is an inherent risk of collateral damage and may create a backlash against the US by the target population. In addition, it may create political controversy both within the US and amongst allies. The costs of this approach may outweigh the limited gains as a risk-acceptant adversary might expect such controversy to prevent the US from engaging in a sustained campaign. The track record of this approach has been mixed at best (as seen in Kosovo).[22]

Retaliating against regime assets would directly target the decisionmakers who chose to use WMD, especially in authoritarian regimes. More specifically, assets of value to these decisionmakers, such as their public and private assets (offices, homes, funds), elite military forces, and supporting institutions (internal security, information agencies), would be targeted as opposed to broader national assets or civilian infrastructure. This would inflict costs on those making the decisions on WMD-use rather than their constituents who may have little or no say in the state's military actions. Determining exactly what to target (what the regime values most), on the other hand, can be difficult and would likely involve the risk of collateral damage. There are also potential legal issues (both domestic and international), especially if individuals are targeted.[23] This may be more effective against some regimes than others, but it has the advantage of directly targeting the interests of those involved in making the decision to use WMD and does not preclude military targets (especially WMD assets, which are likely to be of high value to the regime). Although this approach is unproven, it fits well with the dictates of the deterrence dynamic.

Finally, retaliating through conquest, occupation, and restructuring against a state that has used WMD would certainly eliminate any immediate problems with this adversary. However, even against smaller states such an endeavor would be difficult, costly, and involve an extremely long-term obligation. It might also create a backlash amongst the population in the state and create conditions that would require a prolonged, hostile occupation. Thus, it is a poor deterrent strategy as the threat of such retaliation is unlikely to be credible given the difficulty, cost, and lengthy commitment required.

[22] It should be noted that even with the extensive bombing in Kosovo, civilians were never considered for direct targeting since it would not be effective or desirable, not to mention politically untenable. Civilian infrastructure was only targeted inasmuch as it supported the regime and its military.

[23] Again, after an adversary WMD attack this concern would likely diminish to no significance, but to be an effective deterrent the adversary must perceive before he acts that the asserted US threat is credible. At this pre-attack stage, the political and legal contexts will be far less favorable for the US.

State NNSD: An Integrated Approach

Neither an exclusive reliance on conventional-based threats of denial nor retaliation appears sufficient to deter WMD-armed states. Denial approaches will remain a crucial role for the military from a warfighting perspective, but the risks, vulnerabilities, and difficulties (especially the challenge of effectively communicating demonstrable capabilities and commitment) for the US are likely to diminish deterrent effects. Furthermore, many WMD-armed adversaries took US conventional superiority into account when they made their decisions to assume the costs and risks of acquiring and maintaining WMD capabilities.[24] Retaliation could be effective in some areas, but the limited and controlled nature of conventional strikes (the very features that make them more credible) may raise doubts about whether sufficient costs will be inflicted, especially against adversaries willing to run risks or absorb high costs.

Thus, a viable NNSD would need to integrate both denial and retaliation. Integrating these two approaches would combine the advantages of both, minimize the weaknesses of each, and augment deterrent effects. Based on the above assessments, this integrated approach would combine the denial of military objectives from aggression with an explicit retaliatory policy against the adversary's regime assets for WMD-use.

> ***An integrated NNSD approach for state adversaries would combine the threat of denying military objectives with an explicit retaliatory policy against the adversary's regime assets for WMD-use.***

As a result, this approach could shift adversary risk calculations by diminishing the probability of success (through denial) while increasing both risks and costs (through the threat of retaliation).

Many WMD-armed adversaries appear to have realized that the US is limited in its ability to eliminate WMD threats through counter-force targeting and protect itself with active/passive defenses. Adding an explicit retaliatory component can help offset these limitations and further shift an adversary's risk calculation to bolster deterrence. Although retaliation is always an implicit threat should deterrence fail, an explicit articulation will strengthen NNSD by reducing an adversary's ability to conclude that it can achieve success by using WMD with acceptable costs. Many adversaries will likely find such threats more credible than implicit or explicit nuclear threats.

Pursuing this integrated approach does entail some costs and concerns. Forward deployments required to deny an adversary's military objectives will make US forces more vulnerable to WMD as long as inadequate defenses exist. Furthermore, a WMD threat itself could increase the risk of access

[24] See the earlier DFI study for an examination of the motivations for states to acquire WMD.

denial through refusal of allied cooperation. Retaliation may also be challenging as regime assets may be difficult to target and some may be hard to destroy (such as command and control assets that may be hardened and/or deeply buried.) Retaliating against these assets also presents the risk of collateral damage (especially for targets like residences or facilities in populated areas). Retaliation may be further complicated if there are any difficulties in establishing attribution for a WMD attack in the case of asymmetric attack (such as a covert BW or CW attack) or non-conventional delivery system (such as a truck bomb). Finally, there may be legal questions about retaliating against regime assets especially if individuals (leaders, family members, or other supporters) are targeted.

Overall, an integrated approach to NNSD for states appears theoretically sound but requirements for critical capabilities must be examined. This approach takes advantage of the broadly accepted view that US conventional superiority is overwhelming. The combination of denial and retaliation is designed to maximize risks and costs for adversaries. Yet, the lack of certain capabilities will undermine an optimal deterrent threat. Moreover, the US must be able to demonstrate such capability and communicate its commitment to produce a strong threat.

NNSD for Non-State Actors

NSAs pose a difficult challenge for deterrence, both conceptually and practically.[25] The often ambiguous and elusive nature of NSAs make determining their responsibility for any attack extremely difficult. Attribution is particularly a problem since retaliation will be difficult and controversial if responsibility cannot be determined convincingly and within a reasonable amount of time. Also, identifying clear NSA targets to retaliate against is complicated and requires robust intelligence capabilities.

> ***Effectively identifying NSA threats and establishing attribution for attacks will be absolutely critical for either a denial or retaliation NNSD approach for NSAs.***

Although state-sponsored NSAs are often regarded as more deterrable because their state sponsor can be targeted, determining and demonstrably establishing NSA linkages to a state can be extremely difficult. This is particularly a problem for retaliation strategies since the US must, *a priori*, convey its ability to establish such a linkage in order to deter such threats. Variable levels of state sponsorship can also raise problems for retaliation.

For all NSAs, especially independent or unstructured actors (many with fanatical objectives), altering their risk calculations will be extremely difficult.

[25] The literature review on conventional deterrence and terrorism completed as a part of this project highlights the strong tendency of scholars/analysts to focus on deterring states, often characterizing NSAs as undeterrable.

As noted above, message filters for NSAs are quite variable and often difficult to predict. Moreover, some NSAs may regard even a failed attack as preferable to not attacking. In fact, those willing to become martyrs are in most cases not susceptible to deterrence by retaliation (though they may be deterred by denial, at least against particular targets).

Despite the difficulty of deterring NSAs, the magnitude of the threat posed by WMD-armed NSAs makes attempting such deterrence important. Continuing to treat NSAs primarily as challenges for law enforcement rather than targets for military action may prompt such adversaries to perceive they can hit the US without facing dire consequences.

Non-State NNSD by Denial

Deterrent threats based on denying the objectives of a WMD-armed NSA could range from attempts to block all operations to denying adversaries the ability to escape after a WMD attack:

1. Hostile Operations: General operations of WMD-armed terrorists
2. Coercion: WMD threats to achieve political objectives
3. Terrorism: WMD attack by NSAs
4. Escape: Attempts to flee an attack

Denial of operations would involve the threat to limit the functions of NSAs that acquire WMD. While such efforts would presumably be primarily political and legal in nature, military operations could be included. This would allow the US to deal with NSA WMD threats before they can put US citizens, allies, or interests at risk. Trying to do this, however, would be exceedingly difficult for a range of reasons, including intelligence shortfalls (Who and where are they?), requirements (What can we do to disable them?), and operational constraints (How do we strike at them?). Broad political support would be required and difficult to obtain given the variety of legal issues that would be raised in taking action against an organization that may not (yet) have undertaken any hostile activities. This makes this approach more of a pre-emptive strategy than deterrence and could create significant political backlash against the US. Given the complexity and controversy of this approach, it is unlikely to succeed as a military strategy and would have to rely primarily on diplomatic and economic efforts to obstruct or constrain NSA operations.

Trying to deny political-military coercion by WMD-armed NSAs would address the primary objective of most NSAs and could help avoid terrorist attacks. However, this is subject to many of the same problems noted above and would be a difficult approach to sustain, especially in the absence of specific threats. Moreover, credible military threats to deny this type of coercion would require the NSA to regard the US as capable of denying a WMD attack. Any denial threat would require a mix of military, political, and economic measures with an emphasis on diplomatic efforts.

Denial of objectives from terrorist WMD attacks, therefore, will be the most important role for the US military against NSAs. Since this would involve the protection of US citizens, territories, and allies it would be broadly supported under threat of an imminent or specific attack, but could be difficult to sustain in the absence of such a threat. Like other denial efforts, this approach would depend heavily on intelligence capabilities (especially information, detection, and warning) before an attack. Ambiguous threats and covert activities, however, make targeting and defense difficult until an attack actually occurs. As a result, consequence management will remain an important mission for the military in order to limit the casualties and damage NSAs are seeking to inflict.

> ***Denial of NSA attacks would include interdiction, defenses, and consequence management.***

Accepting that conveying credible denial of objective threats is a difficult challenge, preventing escape of terrorists might seem more feasible. In the past, the US military has conducted operations to apprehend terrorists or prevent their escape.[26] While such a law enforcement approach would likely be popular, it would only apply after the fact (after an attack or attempted attack has taken place); would be difficult to do without sufficient time for preparation and gathering information; and would not apply to terrorists who are willing to become martyrs. Moreover, the agents of an attack are rarely key figures in the larger NSA organization responsible for approving operations. Therefore, while this may be an effort worth undertaking in certain circumstances, it does not provide the basis for a deterrent strategy.

Non-State NNSD by Retaliation

This pessimistic assessment of denial of objective approaches highlights the need for close attention to the potential of retaliation-based threats. Yet, there are limited targets for retaliation against NSAs:

1. State Sponsor: May include targets not directly associated with NSA
2. Organization: Leadership, bases of operations, other assets
3. Constituents: Represented groups or NSA members

Although it is not applicable to all NSA types, threatening retaliation against state sponsors (as the US did against Libya in 1986) has a number of benefits. It discourages state sponsorship of NSAs, which could make it more difficult for NSAs to operate. Military threats against a state are also easier to plan and carryout than those against NSAs, thus they will appear more credible, all else being equal. As noted above, direct sponsorship must be demonstrable to the extent that adversaries appreciate the ability of the US to establish a linkage. States may possess more identifiable targets than NSAs, but choosing specific

[26] Such as the use of US military forces to capture Abu Abbas following the high jacking of the *Achille Lauro* and the death of an American citizen.

targets and limiting collateral damage may be more difficult. There is also a risk that such actions could create a broader international conflict.

Threatening to directly target the NSA organization focuses retaliation against the most responsible party (as the US did against Osama Bin Laden in August 1998). However, specific targets are difficult to identify and there is a significant risk of collateral damage and operational failure. Even when targets are identified, high-tech stand-off weapons may not be effective given the location of the targets (in populated areas, for example). This would require the insertion of ground forces (SOF) and the risk of casualties. It could be difficult to convince adversaries that the US would undertake such action in response to limited WMD uses, especially against allies/friends vice the United States.

> ***Retaliation against the NSA organization could be effective but is very difficult and risks casualties.***

These targets might be in states which, although not necessarily supportive of their operations, could become involved in creating a broader international conflict. Legal constraints may also apply if individuals in the leadership are identified as targets. Still, threat of military retaliation against the NSA leadership itself has considerable appeal in that it maximizes the costs of initiating action. Where there is direct support from a state, this approach could overlap with retaliation against the state sponsor. Any other retaliation would have to be primarily political and/or economic.

A third type of retaliation threat is to target the constituency of the NSA. For example, Israel has periodically used this approach with the Palestinians. The goal would be to convince the NSA leadership that WMD strikes would result in its constituency suffering and blaming the NSA for their predicament. However, history has shown that this approach tends to backfire by strengthening constituent support for the NSA and generating greater resentment against the retaliating state. NSA leaders aware of this history are unlikely to find such threats credible, especially if propagated by the US, which will be sensitive to political and moral criticism.

Non-State NNSD: An Integrated Approach

Neither denial nor retaliation threats alone offer much promise of effective deterrence. A denial strategy, on its own, will be extremely difficult given the vast range of potential targets for a NSA attack. Yet, elements of a denial capability remain very important, especially defense and consequence management. Retaliation is also problematic given the difficulty of determining attribution and threatening valued targets, but it does offer the only means to affect costs for NSAs. Therefore, an integrated strategy should seek to offset these shortcomings by explicitly emphasizing denial threats based on the US military's role in defending against attacks and managing consequences while reserving the right to retaliate when appropriate.

> ***An integrated NNSD for NSAs would emphasize the seriousness of WMD threats and US commitment with a declaratory policy to deny such attacks while reserving the right to retaliate.***

This approach would diverge from traditional approaches in which the military often assumes a supporting role to diplomatic, economic, and law enforcement efforts. Instead, the US would threaten to treat WMD attacks by non-state actors as a military action rather than a civil emergency or crime. While there would still be extensive interagency involvement in dealing with these NSA threats, the military's role in mitigating these attacks would be emphasized.

There could also be some increased emphasis on territorial security in the roles and missions for the US military. The allocation of greater resources and increased activity in this arena should lead to adversary recognition of enhanced US denial capabilities and make US targets less vulnerable. This effect would raise the risks for NSAs and diminish their prospects for a successful WMD attack.

While the US always reserves the right to retaliate when justified, it would be unwise to articulate such policy *a priori* for NSAs given the uncertainties and difficulties involved. Retaliation against the NSA may be difficult given attribution problems, but it will be the most effective (and possibly the only) way to inflict costs on them should they choose to attack. The retaliation option also allows for the opportunity to deny further NSA activities if and when apprehension is not possible or likely. Since this approach does not preclude targeting state sponsors, it could undermine support for WMD-armed NSAs as well.

> ***An explicit retaliation policy for NSAs could be problematic because NSA attribution may be difficult to establish in a timely manner and assets are difficult to target and destroy. An ineffective retaliatory strike could actually undermine the credibility of US deterrence in the future.***

Although this strategy could have broader applicability to NSAs, it should be reserved for the more significant threats that arise when WMD is involved. It entails a US emphasis (through declaratory policy and resource allocation) that NSA use of WMD is a far greater national security threat and will be treated accordingly. Similarly, this approach should seek to convey that state sponsors of NSAs with WMD would be held accountable as well (see below).

This represents a more active attempt to deter WMD attacks by NSAs and is intended to increase the perceived commitment of the US to act against such threats. Operationally, this may not be substantially different from current roles and missions for US military forces with regard to potential NSA attacks. However, raising the priority of these types of attack may help

prevent them by demonstrating US commitment.[27] The uncertainties and ambiguities of NSA threats make denial of attack difficult while retaliation depends on the ability to demonstrably attribute responsibility and effectively identify/strike targets in a timely manner. However, without this commitment there is essentially no explicit deterrence policy for WMD threats from NSAs and the US will be forced to rely on *ad hoc* defenses and consequence management.[28]

The Nexus of State and NSAs

Although states and NSAs have been examined separately for the purposes of assessing NNSD options, in some contexts the adversary might combine both types. Of particular concern to the US are the state-sponsored NSAs noted above, proxy organizations for hostile states, and special operations by adversary states that may not be overtly military in nature (officially sanctioned terrorist activity). Although identification of these actors and attribution of their actions to their state supporters remains difficult, they should be included in any NNSD strategy. Therefore a specific declaratory policy for state sponsors should be considered and could involve categorizing such actors and their threats as equivalent to states and military attacks.

Recommended NNSD Approach

NNSD seeks to use conventional forces to deter the wide range of WMD threats to the US, its forces, or allies/friends. A conventional forces approach avoids questions about the credibility of using nuclear forces to deter WMD against many adversaries.[29] Lacking a "silver bullet" that will effectively deter the range of states and NSAs armed with WMD, the project team recommends an integrated strategy that combines a variety of approaches and and can be adjusted to meet the requirements of particular contexts. This integrated strategy seeks to raise WMD threats to the level of a significant, strategic threat to national security, regardless of the type of adversary (state or NSA). This approach is intended to emphasize demonstrable US

[27] It could be argued that, conversely, placing such a high priority on NSA WMD attacks could make such an effort even more desirable for terrorists. However, this appeal probably already exists for NSAs given the potential to cause unprecedented devastation for a non-state actor. Waiting until an attack occurs to set these priorities could result in the "free shot" that critics warn about. NSAs need to be convinced of the risks they would undertake in employing WMD.

[28] Given the nature of NSAs, a number of non-military, interagency activities will need to be coordinated with military efforts to deter WMD threats from NSAs. The threat of foreign policy tools (such as diplomatic and economic sanctions) should be used to increase the costs for any states, organizations, or individuals associated with NSAs contemplating WMD action. Interagency coordination between intelligence, law enforcement, and civilian consequence management capabilities can increase the ability to detect, deny, and limit the effects of an attack as well as retaliate more effectively when appropriate. Significant interagency cooperation would be required for the US military to play a more prominent role in deterring NSA WMD threats. Coordinating both military and non-military activities would more effectively and convincingly demonstrate an active US deterrence of WMD threats by NSAs. This is discussed in more detail in the next section.

[29] Except Russia and China which are excluded from this examination of NNSD.

capabilities and commitment to enhance the credibility for the deterrence of diverse WMD threats.

> ***An integrated NNSD strategy combines approaches (both denial and retaliation threats) to deter a range of threats (states and NSA).***

Based on this approach, NNSD begins by combining the most appealing elements of denial and retaliation threat approaches for both states and NSAs. The US military will seek to deny the adversary from accomplishing its objectives with WMD-use. Moreover, any state that uses WMD against a US target or interest (including key allies) will face retaliation directly against regime/leadership assets.

NNSD employs a clearer declaratory policy, once again including both states and NSAs. WMD attacks will be dealt with as serious, strategic threats to national security regardless of the type of adversary. The retaliatory component of this strategy would be explicit when state adversaries are involved. The US would also reserve the right to retaliate against NSAs and/or their state sponsors when attribution is established.

NNSD would also ensure that military and non-military options are employed in consonance. Non-military tools and agencies must be coordinated to maximize deterrent capabilities and effects, especially against NSAs. Given the significance of WMD threats, however, the military will play a prominent, if not lead, role in deterring these threats.

This NNSD approach could enhance the credibility of US deterrent threats, but requires demonstrable conventional capabilities and explicit, declaratory policies to indicate US commitment.

> ***An integrated NNSD strategy should provide options for tailoring application to different contextual situations.***

The application of NNSD must take into account contextual considerations. The key will be to effectively communicate (both verbally and through actions) deterrent attempts so that adversaries will perceive them as credible. This means that the nature of the adversary in question (including the message filters that are likely to be involved) and other regional factors must receive close scrutiny and appropriate consideration. Any NNSD strategy must be flexible enough to adapt to these different contexts. The declaratory policy will have to be nuanced so that it can be broadly applied to these varied contexts and refined for more specific applications.

NNSD: Implications

What would be the implications for doctrine, force structure, and organization, if the US pursued the NNSD approach identified in the preceding section? This section outlines the project team's findings on the compatibilities between existing policy and the changes required in each area to implement NNSD. The discussion also considers the effects on warfighting capabilities and cost implications of such a transition.

The integrated NNSD strategy presented here is generally compatible with existing policy or trends. However, optimizing NNSD requires some shifts in emphasis and modest changes. While some of these changes may appear to be purely symbolic, they would be important for enhancing the potential to demonstrate capabilities and display commitment, communicating a credible deterrent threat.

Doctrine

US military doctrine is based on broad national security guidelines developed by the President, such as the National Military Strategy document. Currently, a series of Joint Doctrine publications (which establish DoD procedures, roles, and missions) are in place or in development to operationalize the different facets in the broader guidance related to deterrence (see Table 1).

Table 1: Joint Doctrine Publications

Completed Documents	Under Development or Revision	To Be Developed
NBC Defense (07/00)	Nuclear Operations (01/03)	Consequence Management
Anti-terrorism (03/98)	Counterproliferation (10/02)	
Intelligence Preparation of the Battlespace (05/00)	Strategic Attack (11/02)	
Civil Military Operations (02/01)	Joint Targeting (09/01)	
	Interagency Coordination (04/02)	
	Information Operations – Draft (05/01)	

The current doctrine[30] suffers from the lack of a single, focused document outlining roles and missions specifically aimed at WMD deterrence. For example, stand-off strike, SOF, and IO weapons all need to function together as part of deterrent threats, yet doctrinally they are treated separately to a large extent. Although NSAs are noted as subject to possible retaliation, the WMD threat from these actors is not prominently featured. Critical counter-proliferation doctrine is under review to coordinate some of these efforts and should be complete by late 2002. However, a myriad of doctrine documents will remain.

In the broader guidance, the WMD threat from NSAs is significantly under-played. DoD is assigned only a supporting role for countering NSAs. Other documents are geared primarily toward "military" WMD threats from states and do not clearly deal with such threats from NSAs as well as in-direct WMD delivery from states or their proxies. No deterrent options are explicitly explored for states or NSAs.[31]

In order to pursue NNSD, several changes will be required:

- Broad Guidance:
  - Articulate non-nuclear approach to WMD deterrence
  - Include an explicit retaliatory option for WMD attack by states
  - Present or define WMD threat from NSAs in more detail
  - Highlight the military's role in dealing with NSAs
- Doctrine:
  - Address ways to counter full range of adversaries/threat types
  - Outline how to coordinate efforts to deter WMD
  - Define when nuclear and non-nuclear options could be used

An appropriate doctrine for NNSD must be both coherent (ideally in a single document) and explicit so that a clear message is conveyed to potential adversaries. Guidance on integration of varied capabilities (strike, SOF, IO, etc.) based in different units with limited interaction should also be stressed.

[30] It should be noted that, to date, the Bush Administration has yet to write a National Security Strategy or National Military Strategy and much of the current doctrine incorporates views articulated by the Clinton Administration.

[31] Broad national security and defense policy guidance stems from documents such as Presidential Decision Directives (particularly, PDD-39, -60, and –62 issued in 1995, 1997, and 1998, respectively), the 1997 *Quadrennial Defense Review*, *1999 National Military Strategy*, and *Joint Vision 2020* (issued in 2000). WMD-specific inputs that demonstrate DoD's progress in implementing the broader strategy include the *2001 Annual Report to Congress* and the DoD publication, *2001 Proliferation: Threat and Response*.

Although these changes would help pursue an integrated NNSD strategy, there are some drawbacks that should be considered. For example, explicitly increasing the range of actors the US intends to deter could raise questions about US capabilities, which would undermine the credibility of this approach. The explicit shift to non-nuclear responses also limits US options for dealing with WMD.

Treating all WMD threats as military attacks, including those from NSAs, may create some political and legal concerns, especially regarding the use of military forces within the US for territorial defense or consequence management. Also, achieving an integrated doctrine that is able to incorporate a wide array of tools (both military and non-military) is complicated greatly by high levels of security classification for some components (SOF, IO, etc.) and the disparate types of organizations involved (from local authorities to FEMA to DoD). While NNSD would involve a more prominent role for the military in dealing with NSAs (both domestically and abroad), these constraints may limit the military to a supporting rather than leading role. Still, efforts should be made to raise the profile of the military's involvement in these efforts when WMD is involved.

There is likely to be bureaucratic resistance to some of these changes as well. Components within DoD (such as STRATCOM) may be opposed to ruling out nuclear options in the way NNSD does. There may, however, be new roles for such organizations in NNSD that may decrease this resistance or create new sources (such as the regional commands) elsewhere in the military structure (see the section on Organization below).

Overall, the changes in doctrine required to pursue NNSD appear achievable with some bureaucratic and legal issues that will need to be managed through careful implementation. These efforts will help implement NNSD and appear to have few negative repercussions for national security in other areas. The loss of nuclear options for responding to WMD may be offset by the "existential nuclear deterrence" noted earlier in this report.[32]

Force Structure

NNSD has implications for three key areas of force structure: Intelligence, Surveillance, and Reconnaissance (ISR); Defenses, both active and passive; and Offenses including information operations, remote strike platforms/munitions, and insertion forces.

In each of these areas there are currently serious gaps in force structure capabilities if the US is to pursue NNSD as a viable strategy. However,

[32] This would differ from the current policy of "Calculated Ambiguity" in that the use of nuclear weapons would be explicitly excluded. NNSD could also be incorporated with broader nuclear doctrine, an option discussed in more detail in the report's conclusion.

current DoD development efforts are moving to address many of these shortcomings in search of better warfighting capabilities.[33]

Intelligence, Surveillance, and Reconnaissance

In the area of ISR, DoD has fielded advanced radars, sensors, UAVs, and elements of "system of systems" (e.g., Navy CEC). Intelligence Preparation of the Battlespace (IPB) capabilities have also improved. Still, capabilities to find and target mobile systems are also lacking. Space-based assets critical for ISR are also potentially vulnerable to attack. Finally, there is an inadequate focus on human intelligence (HUMINT) assets that are especially important for operations against NSAs. Overall, conveying information from "sensors" to "shooters" needs to be improved.

Table 2: Key ISR Capabilities

	Key ISR Capabilities
Current	JSTARS and other manned aerial reconnaissance (AWACS, Hawkeye, Rivet Joint, etc.)
	Navy CEC
	DSP and other space-based sensors
	Limited UAV capabilities
Under Development	Enhanced Global Hawk family of UAVs
	High- and Low-SBIRS for ICBM and theater missile warning
	Navy *Hairy Buffalo* and related systems for mobile targets
	Common Aerospace Vehicle (CAV)

Clearly, progress will continue to occur in the ISR arena, but for NNSD the US needs to be able to demonstrate enough awareness to credibly threaten the adversary and minimize US vulnerabilities. Attention should be paid to improving intelligence capabilities along with sensing and detection capabilities for WMD. Current efforts to improve IPB and situation awareness, therefore, warrant greater emphasis.

> ***Increasing and improving HUMINT capabilities will be a critical requirement for NNSD, especially of NSAs.***

Intelligence efforts should be aimed at obtaining greater information on NSAs and to assist in targeting NSAs, regime assets, and mobile targets. Such efforts would require cooperation amongst intelligence agencies and the services and could be hampered by departmental parochialism. Also, technical limitations may continue to make detection and targeting difficult to

[33] "Projected" force structure is based on current research and development efforts.

accomplish, especially in a timely fashion. Finally, there are legal constraints on using (especially paying) so-called "bad actors" for information.

Table 3: ISR and NNSD

Strengths	Weaknesses	Key Issues
• DoD has fielded advanced radars, sensors, UAVs, and elements of "system of systems" (i.e., Navy CEC) • Improved IPB	• Limited focus on HUMINT assets (especially for NSAs) • Potential vulnerability of space-based assets • Inadequate ability to locate mobile targets	• Lack of HUMINT • Identifying and targeting mobile assets

Defenses

Currently, both active and passive defenses are limited. Missile defense is restricted to point defenses. Passive defenses for BW and CW are limited by technology and funding. The effectiveness of BW detectors and sensors is poor or questionable; vaccines are limited in scope[34] and supply; while protective suits remain bulky and difficult to operate in.

These areas are being emphasized in current development efforts, but results have been limited so far. Ongoing research and development efforts into passive defense, especially those addressing APOD/SPOD vulnerability, medical deficiencies, and force protection also support NNSD by decreasing the vulnerability of US forces and improving warfighting capabilities in a WMD environment.

The current Administration's commitment to BMD and several recent successful tests (for both NMD and TMD), however, have placed the spotlight on active defenses. Aggressive DoD efforts to continue developing these systems are likely to augment US defense capabilities. In particular, the prospect exists for effective TMD in the next decade.

[34] Scope refers to the range of agents they protect against.

Table 4: Key Defensive Capabilities

	Active Defenses	Passive Defense
Current	Limited Theater Defense (PAC-3)	Limited BW and CW detection, decontamination, vaccines, and antidotes
	Limited Cruise Missile Defenses	JSLIST suits
Under Development	National Missile Defense (NMD)	Enhanced vaccines and protective equipment
	Upper and Lower Tier Defenses (THAAD, ABL, MEADS, Navy Area- and Theater-wide systems)	Stand-off and point BW and CW detection systems
	Improved Cruise Missile Defenses	

The future for defenses appears brighter, but there are still significant obstacles to be overcome. Uncertainties about the prospects for missile defense along with potentially high costs place the level of future effectiveness in some doubt and there is currently no comprehensive cruise missile defense program. Likewise, there are currently serious scientific limitations on timely BW/CW detection and vaccinations for advanced BW agents. A significant degradation of combat effectiveness in WMD environments remains.

> ***For NNSD, pursuit of improved active theater defenses should remain the top priority in the near term.***

Defenses will be critical for keeping the risks and costs of NNSD down. Without effective defenses, conventional forces will remain vulnerable to WMD threats, undermining the credibility of NNSD. Two items stand out as most valuable in the area of defenses for the near future: TMD and theater cruise missile defenses.

Table 5: Defenses and NNSD

	Strengths	Weaknesses	Key Issues
Active Defenses	• Political commitment to BMD • Successful tests for THAAD, Navy missile defenses • Aggressive DoD effort likely coming to fruition in next decade	• Development problems & high costs make future effectiveness questionable • Vulnerability to counter-measures • No comprehensive cruise missile defense program	• TMD must address counter-measures • Cruise missile program requires attention, especially as TMD improves
Passive Defenses	• Ongoing R&D efforts for APOD/SPOD vulnerability, medical deficiencies, and force protection • Improved warfighting capabilities in a WMD environment	• Significant technical limitations on BW/CW detection as well as vaccinations for new and deadlier strains/agents • Substantial degradation of combat effectiveness in WMD-saturated environment remains	• Early detection technology remains limited • Threat of new and deadlier viruses persists

TMD will be particularly important for mitigating WMD threats in a regional context and achieving extended deterrence. This will improve the survivability of US forces, but it has limited application to threats from NSAs and non-conventional delivery systems that might be used by adversaries in asymmetric strategies. Effective TMD will likely encourage adversary emphasis on cruise missiles, necessitating that the US military dedicate an adequate effort to cruise missile defense. Cruise missile defenses have generally been neglected. They continue to present technological challenges and could be prohibitively expensive, but they will be critical, especially

theater systems.[35] All of these efforts are desirable both in general and for NNSD, but technological and funding limitations may hamper their advancement for the near- to medium-term.

Offenses

Individually, offensive conventional weapons systems are quite capable, but they are currently limited in their ability to operate synergistically. New technologies in IO have performed well and improved capabilities are under development. Unfortunately, IO is not as useful against smaller states and NSAs addressed by NNSD.

Table 6: Key Offensive Capabilities

	Information Operations	**Strike Platforms & Munitions**	**Insertion Forces**
Current	Electronic strike systems (High Power Microwave, Electromagnetic Pulse Weapons)	Bombers (B-52, B-1B, B-2) Strike aircraft (F-15, -16, -117) Carrier aviation (F-14, F/A-18)	Army: Forward deployed and rapid response (airborne)
	Computer network attack capabilities (logic bombs, self-replicating viruses, network flooding, Trojan Horses)	Naval Platforms (Guided missile ships, submarines)	Marines: Forward deployed MEUs and CONUS-based forces
		Precision Guided Munitions (PGMs): JDAM, JSOW, CALCM, TLAM, SLAM-ER	SOF: Army, Navy, Air Force
Under Development	Improvements in the above capabilities and integrating them into warfighting strategy	F-22, JSF, UCAV	Service transformation efforts taking advantage of RMA technologies
	Higher powered directed energy weapons (Radio-frequency beams for attacking power infrastructures)	SSGN, CVNX, DD-21 PGMs: JASSM, SDB, ALAM, Tactical Tomahawk, etc.	Army: ICBTs, Force XXI Marines: Operational Maneuver from the Sea, etc.

[35] Cruise missile defense of US territory is not likely to be technically more difficult than theater cruise missile defense, but the size of the US border presents a large challenge and deploying a working system would be extremely important.

Remote strike capabilities are extremely effective in general, but they remain ineffective against certain key targets. These capabilities have demonstrated superiority over potential adversaries in the area of over-the-horizon capabilities and PGMs. They allow for accurate strikes with reduced collateral damage and limited vulnerability. However, most platforms and bases of operations remain vulnerable to asymmetric attacks and access denial given the limited range of most weapons. Moreover, current capabilities have limitations against mobile targets as well as hard and deeply buried targets (HDBTs).[36] There are also shortfalls in the quantity of PGMs and some questions about the performance of PGMs (such as the Joint Stand-Off Weapon or JSOW).

Table 7: Offenses and NNSD

	Strengths	Weaknesses	Key Issues
Information Operations	• Can have substantial strategic effect • Can be targeted against specific assets	• Little utility against adversaries lacking visible info targets (e.g., some small states or NSAs) • Requires very precise analysis and ISR to judge which attacks will be most effective	• Key technologies have performed well, but concepts and strategies for utilization still under development • Difficult to demonstrate as a deterring threat
Strike Platforms/ PGMs	• Demonstrated over-the-horizon capabilities (B-52, B-2, etc.) • Demonstrated superiority over potential adversaries (e.g.: Iraq) • Increased range and accuracy of PGMs increases lethality and control collateral damage	• Platform vulnerability to asymmetric attacks (especially larger platforms such as carriers) • No current munitions effective for HDBTs • PGM shortage • Questionable performance of some PGMs (JSOW)	• Limited effectiveness against mobile targets • Expensive • Reliant on timely and accurate intelligence (ISR)
Insertion Forces	• Highly trained SOF possess ability to deny NSA objectives	• Risks US casualties	• Effective but difficult to demonstrate for deterrence

[36] The ability to strike mobile targets in a timely fashion is more of an ISR problem than deficiency of the strike systems.

Insertion forces (especially highly trained SOF) possess the ability to deny NSA objectives in select scenarios. These forces would also be particularly important in cases where stand-off weaponry is simply not viable, including states as well NSAs. Services gearing towards more rapid, deployable forces enhance the possibility of effective deterrence by denial threats. Still, adversary perception of US casualty aversion remains high and fully transformed forces are many years away.

> ***Current offensive capabilities can support NNSD, but there are some significant shortfalls especially in conjunction with limitations on ISR and defenses.***

NNSD would place an emphasis on developing improved PGMs as a top priority. This is essential for improving the lethality of non-nuclear weapons that would be required for NNSD (both in denial and retaliation). Improved stand-off weapons could also increase NNSD capabilities while decreasing vulnerability to WMD. This seems to be an achievable effort, but costs would likely be high and limits on technology may slow progress for some time.

Another approach to bolstering US offensive strike capabilities would be to convert some intercontinental ballistic missiles (ICBMs) and submarine launched ballistic missiles (SLBMs) to conventional status by replacing the nuclear warheads.[37] Conventionally-armed cruise missiles, a key element of the current US power project capability, were developed in a similar fashion two decades ago. Conventional ICBMs or SLBMs would add to the arsenal of weapons capable of flying vast distances and invulnerable to any enemy defenses in the foreseeable future. Moreover, a long history of test launches and deployments of these systems provides clear demonstrated capability to adversaries. Given the central role of ballistic missiles in US deterrence for the past forty years, conventionally-armed variants might have great cachet as strategic systems in the mind of the adversary, translating into enhanced deterrence.[38]

These capability and credibility advantages, however, must be weighed against a host of concerns that might undermine the logic of such an initiative. First, operational limitations would have to be considered. In most circumstances, ICBMs would have to overfly Russia, which other adversaries might regard as making them non-credible. SLBMs would not suffer from

[37] A host of concerns may undermine the appeal of this modification to strategic systems including arms control implications, cost, bureaucratic control over the new weapons, and operational limitations for ICBMs (overflight of Russia would often be necessary) and SLBMs (need for dedicated SSBN or to mix nuclear and conventional SLBMs on the same submarine).

[38] Although not relevant for a purely non-nuclear strategic deterrence approach, deploying conventionally-armed variants would expand the utility of ballistic missiles and facilitate a hedging strategy for the nuclear arsenal. That is, conventionally-armed ballistic missiles could be converted back to nuclear status facilitating, if necessary, a more rapid reconstitution of a US nuclear force.

this problem, but the US Navy would either have to deploy dedicated conventionally-armed SSBNs or mix nuclear and conventional SLBMs on the same submarine. Dedicated SSBNs would be extremely expensive, while mixed boats would entail a raft of arms control implications if the US pursues further offensive weapons limits. Moreover, the missiles would need enhanced accuracy to be effective with conventional warheads. Finally, it is not clear that adversaries would regard these strategic systems when armed with conventional warheads as any more lethal than other current and projected US remote strike capabilities. They do not address the key challenges of striking mobile and hard and deeply buried bunker targets. Thus, any resulting enhanced deterrent value is uncertain.

Continued development of information operations and insertion forces would also support NNSD. IO could help disable adversaries' military and other key systems, while SOF could add to NNSD by helping to deny attacks, destroy WMD assets, and capture or attack NSAs. The deterrent utility of these approaches, however, suffers from their great reliance on surprise and secrecy to be effective, which means demonstrating such a capability is difficult at best.

Overall

These suggested improvements in force structure are generally compatible with current trends and projections. Many of these efforts are already under development to some degree. Others are desired but are not feasible in the foreseeable future. This compatibility is not surprising given the link between warfighting and the denial of objective component of NNSD.

The recommendations here are intended to shift the emphasis to the most effective capabilities for influencing the perceptions of costs and risks for potential WMD adversaries. Thus, greater emphasis should be placed on active defenses and remote strike capabilities. Passive defenses, information operations, and SOF also have a role to play. Technology, however, appears to be the major limiting factor in all of these efforts. Therefore, full implementation of NNSD may be dependent on the somewhat unpredictable pace of technological advancement. Also, numbers of key weapons systems may be critical since an adversary that regards the availability of those weapons against it could be less likely to be deterred.

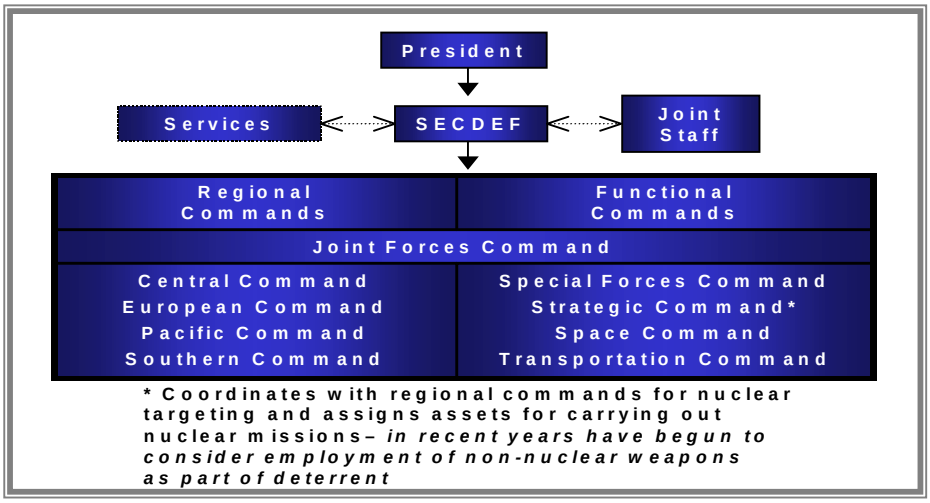
Organization

The Department of Defense is directly charged with the military defense of the nation against threats by other states (see Figure 3). As a result, DoD is optimized for warfighting (with states) and not deterrence (of states or NSAs). Potential WMD threats from NSAs have meant an expanded role in deterrence for DoD along with other departments and agencies. The current organizational structure for addressing NSA threats suffers from multiple chains of command and lines of authority, both within DoD and in the

interagency process (see Figure 4). This complicated system was, in fact, primarily designed to address civilian defenses and consequence management rather than deterrence. Moreover, much of this system is a result of efforts by multiple agencies to meet the challenge of a terrorist attack. It is not surprising, therefore, that the results have not been efficient or well coordinated.

Organization for WMD Threats by States

Figure 3: DoD Organization for State Threats



DoD is generally well organized for dealing with WMD threats by states. The regional CINCs lead this effort effectively. CINC preparation of regional plans conveys increasing capabilities to deny adversary objectives even when WMD is threatened. Transformation entities (such as EAFs and ICBTs) facilitate a strengthened position. Continued development of transformation service concepts can improve the effectiveness of NNSD denial capabilities (due to their rapid response characteristics).

> ***DoD is well organized for dealing with threats from states, but the role of nuclear stakeholders in NNSD is unclear.***

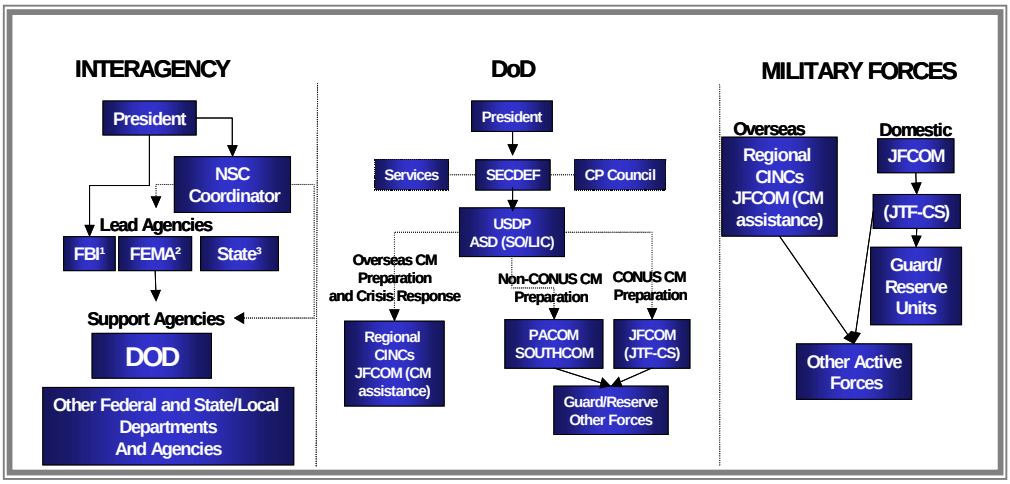
The role of STRATCOM in NNSD however is uncertain. A visible, non-nuclear role for STRATCOM could enhance the significance of conventional forces by giving them an explicitly "strategic" role. For example, STRATCOM could engage in targeting WMD capabilities (with active input from the appropriate regional CINC) in NNSD while the CINCs would actually command the operations. However, this approach is likely to create tensions with the regional CINCs who will want to maintain control over all decisions concerning its area of operations (AOR).

Such organizational changes, therefore, could create antagonism and bureaucratic resistance, especially when nuclear stakeholders like

STRATCOM are included. However, they reflect adjustments for the emerging threat environment as well as a new strategy. Moreover, these changes may also contribute to warfighting capabilities by augmenting rapid response and strike capabilities. The acquisition of conventionally-armed strategic systems would further raise this organizational tension and require reforms.

Organization for WMD Threats by NSAs

Figure 4: US Organization for NSA Threats



As noted above, structures for dealing with WMD threats by NSAs are not well organized. There has been some improvement recently in interagency coordination through integration of some intelligence, law enforcement, and military capabilities. Moreover, WMD threats are more fully recognized, as demonstrated by the creation of a new FEMA office for responding to terrorist attacks. DoD has also consolidated counter-terrorism functions under ASD/SOLIC to cut down on previous duplication of functions in the Pentagon. Military CST teams also represent better integration of state and federal assets. JFCOM assistance to the CINCs allows the regional commands to draw on substantial resident consequence management knowledge to limit the effects of WMD on military forces or operations. In general, efforts to coordinate these activities have resulted in some progress with regard to NSA threats.

> ***The organizational structure for dealing with NSAs includes multiple and overlapping chains of command that cross interagency bounds.***

However, DoD's role in case of NSA attack (including WMD) is as a supporting agency both domestically (within the US) and internationally. Other agencies (FEMA, State or the FBI) must first request DoD resources before the military can even play this role. This interagency process reinforces the view of terrorism as primarily a law enforcement issue and does

not take full advantage of DoD's unique consequence management, intelligence, and SOF capabilities.

Even within DoD, ASD/SOLIC does not control all of DoD's WMD competencies. Therefore, responding to NSA threats requires some coordination within the Pentagon as well. The overall organizational focus in DoD is on consequence management and crisis response rather than deterrence and prevention. Some consequence management preparations are also duplicated at the CINC level. While forces are currently well organized to deal with a wide range of WMD scenarios (both denial and retaliation), some further coordination could benefit DoD efficiency and effectiveness.

Therefore, to fully implement NNSD, the interagency process should emphasize DoD's role in WMD contingencies and capitalize on DoD resources in communications, transportation, medical expertise, as well as training capabilities and facilities. More visible, interagency response capabilities (as seen in JFCOM's *Unified Vision* exercise in 2001) should also be developed. The regional CINC could also play a more prominent role in response to WMD threats by NSAs in conjunction with the State Department and other agencies. DoD should also continue to integrate and coordinate its own ISR, consequence management, crisis response, and retaliatory capabilities.

These changes would certainly elevate WMD threats, including those by NSAs, to the highest level of significance accorded to strategic threats. There is certainly considerable room for improvement both in the interagency process and within DoD. Bureaucratic resistance (based on some legal constraints), especially from the FBI and State Department, who will have to cede some responsibilities or at least attention to DoD, would be unavoidable.

Overall

Current doctrine, force structure, and organization are generally compatible with NNSD. In general, the denial components of NNSD make it largely compatible with warfighting requirements. In fact, warfighting capabilities may actually be strengthened by pursuing NNSD. The force structure implications noted above would improve strike capabilities and defenses, making US conventional forces less vulnerable to WMD. Such capabilities would certainly augment general warfighting capabilities as well.

NNSD and Warfighting Capabilities

Many development efforts and policy revisions already underway should continue to improve this fit in the coming years. In particular, research and development for force structure could (if successful) result in significant advancements in capabilities that would enhance NNSD potential. Current efforts are, however, primarily aimed at improving warfighting capabilities and not deterrence *per se*. While warfighting gains are essential to a deterrence strategy that includes a denial of objectives component, the

emphasis on warfighting rather than deterrence can obscure the communication of effective deterrent threats. Pursuit of NNSD, therefore, can take advantage of its general compatibility with warfighting since it offers enhanced deterrence without exorbitant costs. Yet, the military must be conscious that actual capability and commitment is not enough, and work to ensure doctrine, force structure, and organization facilitate demonstrated capability and commitment.

> ***Pursuing NNSD would involve enhancing the potential for doctrine, force structure, and organization to demonstrate both military capabilities and US commitment to deter WMD.***

The lack of fit between NNSD and current doctrine, force structure, and organization is much more pronounced when dealing with NSAs than state actors. An enhanced military effort to counter NSAs might diminish general warfighting capabilities to a limited degree by distracting the US military from its core mission. However, the pursuit of asymmetric approaches by state adversaries means that they will likely consider employing "terrorist-like" WMD attacks as a part of their warfighting strategy. As a result, the US military will need to enhance its ability to counter this approach or risk decreased warfighting and deterrence potential.

NNSD and Costs

This project did not specifically examine the costs of implementing NNSD. Some general costing implications, however, are apparent. For example, pursuing all of these efforts (especially for force structure and intelligence capabilities) could be extremely expensive. These costs, however, are offset somewhat by the fact that many of these efforts are already underway and would be pursued whether NNSD is implemented or not given their contribution to warfighting.

> ***Obtaining the capabilities needed for NNSD could be very expensive. Still, many of these capabilities will likely be pursued by DoD regardless, given US warfighting requirements against WMD-armed adversaries.***

Also, some missions (such as territorial security) that are a part of NNSD could be very expensive. The territorial security implications of NNSD could also create some competition for resources with warfighting efforts. However, balancing these needs may be crucial. Otherwise, the US homeland may be more vulnerable to attack when US forces are committed overseas. This vulnerability would be greatest when the risk of attack is greatest (during a crisis or hostilities with an adversary).

Even if these components of NNSD are pursued with limited budgets, valuable improvements in capabilities, credibility, and deterrence can be obtained. The cost concerns do force priorities to be set in pursuing NNSD.

NNSD Recommendations

Beyond sensitivity to cost and potential impact on warfighting, pursuing NNSD faces three areas of constraint. The first is technological, especially with regard to active and passive defensives; precision strike of mobile targets; and ISR (for detecting WMD, establishing attribution for attacks, and identifying high-value targets). The second is bureaucratic since critical aspects of NNSD capabilities are distributed in many organizations that must work together efficiently and productively prior to any crisis. The third involves political and legal constraints, since the territorial security and military role with regard to NSAs is legislatively proscribed.

Given these constraints and limited funds, priorities for enhancing NNSD's viability are outlined below for each area:

Doctrine: Emphasis should be placed on creating an enhanced role for the military with regard to WMD threats from NSAs. Also, a Joint Doctrine that more effectively integrates the diverse capabilities and DoD organizations involved should be developed.

Force Structure: Priority should be given to effective TMD and theater cruise missile defense (to protect US troops and allies in theater) and precision strike of mobile targets (for both denial and retaliation). Improved ISR capabilities in general are critical, especially relating to WMD detection. Developing these capabilities would most significantly alter adversaries' perceived risks of using WMD.

Organization: Formal ties should be expanded and publicized between DoD's strategic elements (e.g. STRATCOM, SOCOM, SPACECOM) and the regional CINCs to bolster the "strategic" nature of the heretofore more tactical issues of responding with conventional forces. Given that the bulk of regional adversaries' experience with the US military is through regional CINCs, DoD needs to find ways to ensure that adversaries appreciate that other capabilities can be rapidly and effectively brought to a crisis.

The organizational linkages between offices that are designated to deal with WMD-armed states and terrorists should also be improved and structured to indicate that the US plans to treat NSAs using WMD as military aggressors, not criminals.

A final, broad priority for NNSD should be finding ways to demonstrate deterrent capabilities so that they are more accurately perceived by potential adversaries. Robust, public exercises involving integrated ISR, offensive strike (including IO and SOF), and defensive capabilities could be more

valuable than accumulating individual capabilities.[39] Likewise, a demonstration of substantial improvements in interagency cooperation/ performance in responding to NSAs would be valuable.

Conclusions

In theory, NNSD is certainly a viable approach to deterring emerging WMD threats for both states and NSAs. It addresses many problems and shortcomings in the current approach (or lack thereof) to deterring WMD. NNSD can be pursued in two ways: as a substitute for nuclear deterrence or as a conventional complement to nuclear strategy. In the near term, technological limitations on conventional capabilities and a lack of demonstrated capabilities make it unlikely that NNSD can be fully implemented as a stand-alone strategy. Still, NNSD (or aspects of it) would be valuable as a component of a broader deterrent strategy.

> ***NNSD facilitates deterrence of smaller actors armed with WMD, especially BW and CW, in the near term and possibly offers a broader strategic approach in the long-term.***

Thus, in addition to providing an alternative strategic approach to deterring WMD, NNSD may be valuable for providing conventional options for deterring certain aspects of the current WMD threat. In particular, it may provide effective strategies for dealing with smaller WMD-armed states, situations where the credibility of nuclear threats is questionable at best. Pursuing these components of NNSD should enhance the US' ability to deter the broader range of WMD threats it now faces while maintaining credible nuclear deterrence for states like Russia and China.

[39] Raising the profile of such exercises, which are increasingly occurring, would be productive for NNSD. For example, Joint Forces Command conducted *Unified Vision* from April to June 2001. This exercise experiment in Rapid Decisive Operations including interagency efforts to systematically hit the enemy "everywhere," – militarily, politically, financially, etc.

Table 8: Key Findings

Strategy	**Non-Nuclear Strategic Deterrence**			
Adversary Type	**States**		**Non-State Actors**	
Approach	**Denial of Objectives** Defenses & warfighting	**Retaliation** Explicit policy aimed at regime assets	**Denial of Objectives** Defense & consequence management	**Retaliation** Against NSA and any state sponsors
Key Requirements	Demonstrable capabilities and commitment required to be effective		Higher profile role for military when WMD involved and more robust intelligence capabilities	
Key Shortcomings	Inadequate defenses	PGMs and targeting capabilities limited	Difficult to defend against vague threat	Attribution and targeting problematic
Overall Assessment	Not currently viable as an exclusive strategy for WMD deterrence but provides valuable options for lower-level WMD threats such as BW/CW and NSA threats			

Fortunately, NNSD and its components are largely compatible with current doctrine, force structure, and organization, meaning that warfighting would not be sacrificed to pursue it. Whether as a deterrence strategy or as deterrent options, pursuing NNSD can help focus US deterrence of WMD on they key issues of capabilities, commitment, and resulting credibility. It emphasizes the formulation of an explicit declaratory policy to clarify and convey US strategy. Moreover, it entails not only developing certain capabilities noted above, but also devising ways to demonstrate such capabilities. DTRA can play a valuable role in both technology development (e.g., against WMD defenses), and devising ways to achieve demonstrated capability, the latter being essential for credible NNSD.

Table 9: Priority Recommendations for NNSD

	Focus Areas
Doctrine	Create an enhanced role for DoD in combating NSA/terrorist WMD threats
	A single, integrated joint doctrine document that more clearly describes roles and missions for DoD and the military with regard to WMD threats
Force Structure	Develop TMD to decrease risks of intervention for US and allies when WMD threats are involved
	Develop enhanced precision strike capabilities (especially for countering mobile targets) that would significantly alter an adversary's perceived risks of using WMD
	Continue development of SOF, IO, and ISR (especially HUMINT) capabilities to increase both denial and retaliation capabilities
Organization	Expand ties between DoD's strategic elements (e.g., STRATCOM, SOCOM, SPACECOM) and regional CINCs to bolster "strategic" nature of heretofore more tactical deterrent efforts
	Increase organizational linkages between offices that are designated to deal with WMD-armed states and WMD-armed NSAs (terrorists)
	Improve interagency cooperation and coordination with an enhanced role for the military when WMD is involved

The current strategic threats can be broken down into three broad categories, each of which is most malleable to a different deterrent approach. Traditional nuclear powers (e.g., Russia) could continue to be deterred with nuclear weapons. Emerging or nascent WMD states (e.g., Iraq) would be best deterred by a combination of NNSD and a questionable, but possible nuclear threat. Finally, deterrence of NSAs (e.g., Osama bin Laden) would be of a purely conventional nature. The primary challenge in such a diversified approach to deterrence, however, is its complexity. Internally it will require understanding and coordination of how to employ different capabilities in different contexts. Externally, effectively communicating this complex approach could be difficult, especially since it will be difficult to tailor threats without having them influence other situations.

Conversely, the danger in avoiding such a redefinition of WMD threats is that newer threats will continue to be viewed in the old Cold War paradigm that portrays smaller WMD states as easily deterrable by overwhelming US capabilities and terrorist NSAs as international criminals subject to law enforcement. Although it may not be a solution in and of itself, NNSD may provide both options and a focus on issues that will help determine both interim and longer-term solutions for deterring the range of WMD threats now

facing the US. Exploring NNSD further, therefore, may be an integral part of adapting to the emerging WMD threat environment.

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